POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1939	*h m*		°	°	°	°				
Apr. 29	10 41	6418	−76	117	+11	77	388	7	VG	Mount Wilson.
		6417	−42	151	−11	42	97	12		
		6414	−39	154	−20	41	48	9		
		6413	−34	159	+21	41	194	25		
		6415	−31	162	+12	35	24	3		
		6416	−7	186	+31	35	24	8		
		6410	+8	201	−11	11	242	30		
		6412	+31	224	−11	32	48	15		
		6406	+41	234	−15	42	776	30		
		6407	+42	235	+30	53	630	20		
		6408	+47	240	+5	48	97	1		
		6405	+55	248	+23	60	145	3		
		6409	+85	278	−13	84	242	7		
				(193)	(−4)		2,955	170		
Apr. 30	9 0	6418	−63	118	+12	64	776	15	VG	Do.
		6419	−43	138	−15	44	48	9		
		6414	−38	143	−21	40	97	10		
		6417	−29	152	−11	30	121	15		
		6414	−28	153	−21	33	61	15		
		6413	−21	160	+20	31	170	30		
		6415	−19	162	+11	24	48	5		
		6410	+19	200	−11	21	145	12		
		6412	+44	225	−11	44	48	4		
		6407	+54	235	+30	61	630	16		
		6406	+54	235	−15	54	485	21		
		6408	+60	241	+44	61	97	1		
		6405	+68	249	+22	70	73	4		
				(181)	(−4)		2,799	157		

Mean daily area for 30 days=2,133.
*Not numbered.
Plate quality=F=fair; G=good; VG=very good; P=poor.

PROVISIONAL SUNSPOT RELATIVE NUMBERS FOR APRIL 1939

[Dependent alone on observations at Zurich]

[Data furnished through the courtesy of Prof. W. Brunner, Eidgen. Sternwarte, Zurich, Switzerland]

April 1939	Relative numbers	April 1939	Relative numbers	April 1939	Relative numbers
1	*Ec* 34	11	*a* 103	21	125
2	*Mc* 85	12	*a* 100	22	*a* 115
3	83	13	*EWcc* 112	23	*Macd* 152
4	*a* 82	14	*Eaac* 126	24	151
5	74	15	*b* 121	25	*a* 134
6	*ad* 70	16	*d* 141	26	*abd* 134
7	*Ecd* 63	17	109	27	----------
8	----------	18	102	28	*ad* --
9	*dd* 89	19	*ad* 94	29	----------
10	*Wc* 98	20	*Macdd* 125	30	140

Mean, 26 days=106.2

Middle, large bright chromospheric eruption observed— U. T.

	h	m	h	m	
April 16	8	33 to	9	45	M.
April 16	8	35	9	50	W.
April 21	9	00	9	20	E.
April 22	8	25	8	45	M.
April 24	11	15	11	30	W.

a=Passage of an average-sized group through the central meridian.
b=Passage of a large group through the central meridian.
c=New formation of a group developing into a middle-sized or large center of activity: E, on the eastern part of the sun's disk; W, on the western part; M, in the central-circle zone.
d=Entrance of a large or average-sized center of activity on the east limb.

AEROLOGICAL OBSERVATIONS

[Aerological Division, D. M. LITTLE in charge]

By B. FRANCIS DASHIELL

The 362 airplane and 233 radiosonde upper-air observations shown in tables 1 and 1a for the month of April also include the first of a series of radiosonde reports from Bermuda. Of all observations made exclusively within the United States, 96 percent and 85 percent reached 4 and 5 kilometers, respectively. Radiosonde observations showed some improvement, with 97, 92, 73, and 38 percent of all flights reaching 5, 10, 15, and 18 kilometers, respectively, while a few individual ascents rose to 23 kilometers. At Oakland, Calif., and Washington, D. C., 50 percent and 47 percent, respectively, of all flights launched at the surface attained 18 kilometers. The April wind resultants include those from 3 new pilot balloon stations operating at Des Moines, Iowa, Milwaukee, Wis., and Pueblo, Colo. A detailed explanation of tables 1, 1a, 2, 3, and 4, and charts VIII, IX, X, XI, and XII, will be found in the January 1939 issue of the MONTHLY WEATHER REVIEW.

The weather in April was in contrast with that which prevailed during March over the eastern half of the country. As shown on chart I, mean surface temperatures (° F.) were subnormal east of the Mississippi Valley with the coldest weather over the Great Lakes region, and abnormal temperatures occurred over Nevada and the interior of California. Above the surface, in the free air, the mean temperatures (° C.) for April were lowest over Sault Ste. Marie, Mich., and Fargo, N. Dak., at all levels up to 8 kilometers; over Fargo, N. Dak., from 9 to 12 kilometers; over Oklahoma City, Okla., from 13 to 18 kilometers; and over Oklahoma City, Okla., and Oakland, Calif., at 19 and 20 kilometers. However, the lowest mean temperatures for the current month were recorded over Bermuda, between 12 and 18 kilometers.

A minimum upper-air mean temperature of —69.5° C. was reported from Bermuda, while the lowest for the United States (—63.2° C.) was recorded at Oklahoma City, Okla.; both occurring at 17 kilometers. Highest mean temperatures for the month were recorded over Pensacola, Fla., at 0.5, 1, and 5 kilometers; over El Paso, Tex., at all levels from 1.5 to 4 kilometers; at Oakland, Calif., from 6 to 9 kilometers; over Nashville, Tenn., at 10 and 11 kilometers; and over Sault Ste. Marie, Mich., from 12 to 20 kilometers, inclusive.

The April mean free-air temperatures listed in tables 1 and 1a were seasonally higher at all levels up to 5 kilometers than during March. At the 5-kilometer level the current month was cooler than April 1938, except over stations in the far Northwest and in California. Above 5 kilometers at all stations April was warmer than the preceding month, but Oakland, Calif., became cooler in the levels higher than 10 kilometers.

A center of low mean pressure was indefinitely located north of the Great Lakes region and northeast toward Newfoundland, as shown on charts VIII, IX, X, and XI. At these same levels high pressure prevailed over Bermuda and extended westward in a belt to Pensacola, Fla., El Paso, Tex., and San Diego, Calif. Pressures during April were slightly higher in the North and lower in the South than in March. The pressure differences between the "high" and "low" areas, or gradient between Sault Ste. Marie, Mich., and Pensacola, Fla., at each level, increased with altitude up to 5 kilometers, but were found to be less than the differences noted in March.

Mean relative humidity, from the surface up to 8 kilometers, was highest over Sault Ste. Marie, Mich., and